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AMSAT NEWS SERVICE
ANS-331

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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SB SAT @ AMSAT $ANS-331.01
Longer Eclipse Periods Affecting AO-51 Operation

AMSAT News Service Bulletin 331.01
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.01

AO-51 Command Stations report that the seven year old spacecraft is now shutting down its transmitter after losing sunlight on its solar panels during eclipse periods. Two of the six battery cells are now dead. Since July 31, 2010 AO-51 has maintained continuous and stable operations due to careful tuning of its power settings.

The AO-51 Operations Team reported on November 25 that the on-board computer (IHU) crashed between 1815 and 1945Z due to low voltage. This happened after a few days of intermittent and unpredictable operation.

AO-51 Control Operators Mark Hammond, N8MH and Drew Glasbrenner, KO4MA reset the satellite and started the repeater back up around ~2030Z. Satellite operation was set to the following:

Uplink: 145.880, no PL tone required
Downlink: 435.150 at about 300 milliwatts

Drew reported that telemetry data showed the battery voltage was low, around 4.9v, with cell 1 less than 1 volt. The impending third cell failure will likely end continuing operations, particularly if it fails shorted as the others have. At present there remains little margin as the operations team has observed the transmitters cutting off around 4.7 to 4.6 volts prior to the last reset, in eclipse.

Please submit your AO-51 reports to the OSCAR Status Web Page:
http://oscar.dcarr.org. The command stations monitor this for changes
in the operation. While worldwide participation is good, more reports
from US operators are appreciated.

Eclipse periods, which are expected to reach 30 minutes by the end
of 2011, are causing AO-51 to shut itself OFF due to low voltage.

Please support AMSAT-NA and the other AMSAT groups around the world,
and help us get new satellites into orbit. Projects like Fox, FunCube,
P3E, and Kiwisat need your financial support to keep our amateur sat-
ellite fleet flying.

You can keep up with the latest AO-51 Command Team news at:
http://www.amsat.org/amsat-new/echo/CTNews.php

[ANS thanks the AO-51 Command Team for the above information]

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SB SAT @ AMSAT $ANS-331.02
Latest AMSAT Project Fox Information Posted

AMSAT News Service Bulletin 331.02
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.02

AMSAT-NA's next generation of satellites, Fox-1 and Fox-2 are under
development by the Engineering Team.

Fox-1 will replace the aging AO-51 satellite which has performed as
the most popular EasySat, attracting new satellite operators since
it can be worked with simple equipment. However, after more than 7
years of service, AO-51 is starting to show its age and needs an
affordable replacement.

Why two satellites? The original Fox Engineering Team Study was for
a baseline satellite, with several options for enhancements. At that
time, AO-51 was functioning well, with no indication that its life-
time would be short enough to impact the Fox Project. With the im-
pending loss of AO-51, it was decided to break the Fox Project up
into a quickly deployable baseline FM satellite, Fox-1, and a second
more flexible satellite, Fox-2.

Fox-2 will benefit from the development work of the baseline Fox-1,
with the additional time being applied to developing its more sophis-
ticated power and Software Defined Transponder (SDX) communications
systems.

The Powerpoint presentations on AMSAT's Fox web site provide a good
view of the technical progress: http://www.amsat.org/amsat-new/fox/

Project milestones completed this year:

+ Fox-1 project defined - July 2011
+ Concept of Operations (ConOps) - September 2011
+ System Requirements Spec (SRS) - October 2011
+ Experiment Payload Specification - November 2011
+ NASA ELaNa Proposal Submitted - November 2011

Preliminary milestones for 2012 and 2013 are:

+ Baselined Project Plan - January 2012
+ Preliminary Design Review (PDR) - March 2012
+ Engineering prototype - July 2012
+ Critical Design Review (CDR) - August 2012
+ Flight model ready for test - November 2012
+ Launch Readiness Review - January 2013
+ Launch Target - 2nd half of 2013

Also available for download from the AMSAT Project Fox web page are the Powerpoint presentations by members of the AMSAT Engineering Team at the 2011 AMSAT Space Symposium in San Jose:

+ Fox-1 Project Overview
+ Fox-1 Mechanical Design
+ Fox-1 Thermal Design
+ Fox-1 Radiation Environment

If you are interested in more details you may wish to see the papers in the yearly Proceedings of the AMSAT-NA Space Symposium, available from the AMSAT Store:
http://www.amsat-na.com/store/item.php?id0190

[ANS thanks the AMSAT Engineering Team for the above information]

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SB SAT @ AMSAT $ANS-331.03
Watch On-Line: Interviews Recorded at AMSAT 2011 Space Symposium

AMSAT News Service Bulletin 331.03
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
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During the 2011 AMSAT Symposium in San Jose a few weeks ago, ARRL Test Engineer Bob Allison, WB1GCM interviewed an number of AMSAT Officers and Lance Ginner of Project OSCAR.

These interviews are now available on You Tube.

+ Barry Baines, WD4ASW
  http://www.youtube.com/watch?v=LBB4imXGk&feature=related

+ Gould Smith, WA4SXM
  http://www.youtube.com/watch?v=_-2wNmFqc

+ Jan King, VK4GEY
  http://www.youtube.com/watch?v=xe76LEK9Y&feature=related

+ Keith Baker, KB1SF
  http://www.youtube.com/watch?v=o6U7CPvvo&feature=related

+ Lance Ginner, K6GSJ - Project OSCAR
  http://www.youtube.com/watch?v=Kc2ZY3LCA&feature=related

[ANS thanks Gould Smith, WA4SXM for the above information]

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SB SAT @ AMSAT $ANS-331.04
This Week 50 Years Ago: OSCAR 1 Announcement for December 1, 1961

AMSAT News Service Bulletin 331.04
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.04

The AMSAT News Service is re-running the Project OSCAR Newsletters to commemorate the 50th anniversary of OSCAR 1. During the November/ December 2011 time frame you will be able to share the excitement of the launch campaign that started it all 50 years ago.

The Newsletters were hand-typed back in 1961. Thanks to Don Ferguson, KD6IRE for scanning the original documents announcing OSCAR 1.

<Begin Commemorative Message>

O S C A R N E W S L E T T E R

December 1, 1961

Good News!
The following is quoted from the Department of Defense News Release dated November 15, 1961:

AIR FORCE TO ORBIT SMALL SATELLITE FOR "HAM" OPERATORS' USE

"The Air Force is planning to boost into orbit a small amateur radio satellite so that "ham" operators around the world can contribute to the world's knowledge on the development and operation of space communications systems."

"Known as Project OSCAR - Orbiting Satellite Carrying Amateur Radio - the program is the result of extensive thought and planning on the part of several California amateur operators. They have formed the OSCAR Association to follow through on the project.

"The Air Force Space Systems Division in Los Angeles has agreed to orbit the OSCAR satellite on a space available basis on board a DISCOVERER satellite which will be launched from Vandenberg AFB next month.

"The OSCAR satellite will weigh approximately ten pounds and will be lifted into orbit on the external aft portion of the AGENA Satellite. Sometime after the AGENA has attained orbit the OSCAR satellite will separate from the mother vehicle. Antennae will extend and the transmitter will commence operation. The OSCAR satellite will contain its own battery power system and is anticipated to have a 30-day life in orbit. "The OSCAR satellite is designed to investigate radio propagation phenomena in the two meter (144-146) portion of the radio frequency spectrum."

Simultaneously, a letter from Dr. J. V. Charyk, Under Secretary of the Air Force to the American Radio Relay League, says (in part):

"I am pleased to advise that the Air Force will undertake to place into orbit an Oscar package.....Our Space Systems Division has been instructed to accomplish the Oscar package launching at the earliest feasible date (italics ours) on a non-interference basis to the performance or mission of the launch carrier vehic1e..... Please be assured of the complete cooperation by the Air Force toward success-

ful accomplishment of this amateur experiment."

THIS MEANS THAT THE LAUNCH INTO SPACE OF OSCAR I, THE WORLD'S FIRST AMATEUR RADIO SATELLITE IS IMINENT -- PROBABLY WELL WITHIN THE MONTH! ACTUAL LAUNCH DATE CANNOT BE YET RELEASED FOR SECURITY REASONS. LISTEN TO THE VOICE OF AMERICA BROADCASTS AND THE OFFICIAL ARRL BROADCAST FROM WIAW FOR LAUNCH DATE! ALSO WATCH YOUR LOCAL NEWSPAPER FOR LAUNCH INFORMATION!

RECENT "UP" AND "AP" OSCAR NEWS DESPATCHES HAVE BEEN FEATURED IN MAJOR NEWSPAPERS, AND IN ADDITION, W6SAI AND K6LFH WERE INTERVIEWED BY VOICE OF AMERICA ON THE NOVEMBER 27TH AMATEUR RADIO PROGRAM WHICH FEATURED THE OSCAR STORY. YOUR COOPERATION IN THIS IMPORTANT, WORLD-WIDE AMATEUR SPACE EXPERIMENT IS URGENTLY REQUIRED. SEE RECENT ISSUES OF QST AND CQ MAGAZINES FOR ARTICLES ON RECEPTION AND TRACKING OF THE OSCAR 145 MC RADIO BEACON. AS THE BEACON HAS NO RECEPTION PACILITIES, QQ NQT MAKE CALLS TO THE BEACON. KEEP YOUR TRANSMITTER CLEAR OF 145 MC! OSCAR I WILL BE IN POLAR ORBIT, THUS PASSING OVER EACH POINT ON EARTH APPROXIMATELY FOUR TIMES PER DAY ON NORTH-TO-SOUTH AND SOUTH-TO-NORTH ORBITS.

THE TIME IS NOW! ARE YOU READY?

NOW THAT WE HAVE RECEIVED ALL NECESSARY PERMISSION AND ASSISTANCE, OSCAR 1 WILL BE ON ITS OWN WHEN IT IS EJECTED FROM THE PARENT VEHICLE. THE OSCAR ASSOCIATION AND THE U. S. AIR FORCE HAVE AT THIS POINT DONE ALL THEY CAN DO TO MAKE THE EXPERIMENT A SUCCESSFUL ONE. THE RESULTS OF THIS EXPERIMENT WILL DEPEND UPON YOU - THE RADIO AMATEUR. YOU MUST CARRY ON FROM THIS POINT! YOUR COOPERATION IN THIS NON-COMMERCIAL, NON-MILITARY SPACE EFFORT WILL BE IN THE BEST TRADITIONS OF AMATEUR RADIO!

GOOD LUCK!

A11 reception reports of Oscar I should be directed to:
Oscar Association, P. O. Box ---, Sunnyvale, California, USA.
A11 correct reports will receive a special OSCAR I QSL card, verifying reception of the world's first amateur radio satellite.

<End of Commemorative Message>

[ANS thanks Don Ferguson, KD6IRE and Project OSCAR for the above information]

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SB SAT @ AMSAT $ANS-331.05
Arizona Centennial K7UGA Announces Expanded Satellite Operation

AMSAT News Service Bulletin 331.05
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.05

The November 20 ANS-324 Bulletins carried the announcement of the Central Arizona DX Association (CADXA) special event operation in celebration of the Arizona Centennial during the week of February 13-19th, 2012.

They will be using the callsign of the late Senior Senator, and Arizona native son, Barry M. Goldwater, K7UGA. Operations will be on all amateur bands (160-2 meters); and will be using CW, SSB,

RTTY, PSK31 and Satellite modes.

This week Arizona's AMSAT Field Ops coordinator Patrick Stoddard, WD9EWK/VA7EWK announced expanded satellite operations using the K7UGA callsign:

+ Watch for Patrick's announcements on amsat-bb for the specific passes he plans to operate using the K7UGA callsign on February 14.

+ Patrick plans to use the K7UGA call sign for his on-air satellite demonstrations from the Yuma, Arizona Hamfest on February 17-18, 2012.

+ Patrick posted information about this on AMSAT's online calendar of events:
http://www.amsat.org/amsat-new/fieldops/eventDetail.php?eIDb9

+ Also refer to http://www.qrz.com/db/k7uga for additional info.

Rick Tejera, K7TEJ says the Thunderbird Amateur Radio Club will be operating a special event station for the Arizona Centennial as well the weekend of Feb 11-12, 2012. Rick plans to operating on as many FM satellite passes as possible during the event using the W7A call.

[ANS thanks Patrick Stoddard, WD9EWK/VA7EWK and Rick Tejera, K7TEJ for the above information]

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SB SAT @ AMSAT $ANS-331.06
Next Proposal Cycle for US Based ARISS School Contacts Opens

AMSAT News Service Bulletin 331.06
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.06

NASA is now accepting proposals from U.S. schools, museums, science centers and community youth organizations to host an Amateur Radio on the International Space Station, or ARISS, contact between July 15, 2012, and Jan. 15, 2013. To maximize these radio contact opportunities, NASA is looking for organizations that will draw large numbers of participants and integrate the contact into a well-developed education plan. Proposals are due Jan. 30, 2012.

Using amateur radio, students can ask astronauts questions about life in space and other space-related topics. Students fully engage in the ARISS contact by helping set up an amateur radio ground station at the school and then using that station to talk directly with a crew member on the International Space Station for approximately 10 minutes. The technology is easier to acquire than ever before. ARISS has a network of mentors to help you obtain the technology required to host this once in a lifetime opportunity for your students.

Interested parties should contact Teaching From Space, a NASA Education office, to obtain complete information including how the technology works, what is expected of the host organization and how to obtain the proposal/application form by sending an email to J SC-TFS-ARISS@mail.nasa.gov or by calling 281-244-1919.

Additional information can be found at: http://tinyurl.com/6fc2lzn

(NASA Teaching From Space)

[ANS thanks the NASA Teaching From Space Office for the above
information]

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SB SAT @ AMSAT $ANS-331.07
14 Year-old Co-ordinates ARISS Contact for Her School

AMSAT News Service Bulletin 331.07
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.07

The Amateur Radio on the International Space Station (ARISS) Status Report for the Week of November 21, 2011 noted that the November 14 A.S.J. Memorial High School in Thetford Mines, Qu�bec, Canada ARISS contact with Astronaut Mike Fossum, KF5AQG on the ISS was a success.

A 14 year-old girl co-ordinated the contact with some help from her father and support from her math teacher. She also acted as radio operator during the event, which was attended by approximately 350 people, including local and regional media.

After the contact, she received a standing ovation from her fellow students and senior provincial members of parliament have asked her, along with her team, to attend the provincial legislature to be recognized for her efforts.

CBC Radio Canada conducted an interview with the student and her teacher. The audio is available at: http://tinyurl.com/cbvqopv (CBC.ca)

[ANS thanks [ANS thanks Carol Jackson, KB3LKI, and the ARISS Status
Report for the above information]

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SB SAT @ AMSAT $ANS-331.08
ISS Expedition 29 Astronaut Hams Land Safely

AMSAT News Service Bulletin 331.08
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.08

Expedition 29 Commander Mike Fossum KF5AQG, Flight Engineers Satoshi Furukawa KE5DAW of the Japan Aerospace Exploration Agency and Sergei Volkov U4MIR of the Russian Federal Space Agency landed their Soyuz spacecraft in Kazakhstan on November 22.

Video cameras on the space station captured the dramatic re-entry of the Soyuz capsule:
http://www.youtube.com/watch?feature�ayer_embedded&v�Ro5XeK4DU

Video footage of the change over ceremony to Expedition 30 and the Soyuz undocking have been posted by UniverseToday.com at:
http://tinyurl.com/7c3ucxw

Dan Burbank, KC5ZSX now leads Expedition 30. Burbank and Flight Engineers Anatoly Ivanishin and Anton Shkaplerov of Russia will continue research and maintenance aboard the station.

The remaining Expedition 30 crew members, NASA astronaut Don Pettit KD5MDT, European Space Agency astronaut Andre Kuipers PI9ISS, and cosmonaut Oleg Kononenko RN3DX, are scheduled to launch Dec. 21 from the Baikonur Cosmodrome and dock with the station on Dec. 23.

[ANS thanks NASA and UniverseToday.com for the above information]

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SB SAT @ AMSAT $ANS-331.09
Satellite Shorts From All Over

AMSAT News Service Bulletin 331.09
>From AMSAT HQ SILVER SPRING, MD.
November 27, 2011
To All RADIO AMATEURS
BID: $ANS-331.09

+ Yuri, UT1FG, will once again be traveling across the Atlantic Ocean and will be active from some "Wet grids" as UT1FG/MM between November 25, 2011, through the end of May 2012. His first trip will be from the Panama Cannal to Huelva, Spain. Yuri is reportedly a crew member on the ship, so activity will be during his free time. Operations are expected on all amateur radio bands, 160-2 meters, 70 cm, and also including the satellite. His activities will be mainly through the satellite, but also look for him on the HF bands. He will also be active on 6 meters, conditions permitting. QSL via his home callsign, direct (see QRZ.com), by the Bureau or to his QSL Manager UX0FY.
SOURCE: Ohio/Penn DX Bulletin #1037

+ If you are interested in a certificate for ARISSat reception, the directions are at: http://www.arissat1.org. This link will take you directly to the Reception Certificate page: http://tinyurl.com/42nqk55

+ Don't forget to keep forwarding your received telemetry to be automatically entered into the "Who Will Catch the Last Telemetry From ARISSat-1/KEDR" Contest. Just submit ARISSat-1 telemetry over the Internet using either ARISSatTLM telemetry program. You can use the PC version or the MAC version of ARISSatTLM and you are automatically eligible. Download ARISSatTLM for PC or MAC from the software link on the main ARISSat-1 web page: http://www.arissat1.org/v3/ if you don't already have it.

+ On Tuesday, November 15, the ARISS International Team held its monthly teleconference. A recap was given on the ARISS face-to-face meeting held in October, and status updates were given on HamTV and ARISSat-1. Minutes have been posted.
See: http://ariss.rac.ca/arisstel2011-11-15.htm

+ This video was put together by Astronaut Ron Garan, who returned home on September 16, 2011 after spending about six months in space. He set up a Nikon D3S camera in the Cupola on the space station, took some practice shots, and worked on getting the right settings, then set up the camera to take about 500 pictures at 3-second intervals. Ron posted the results on his blog, "Time Lapse From Space - Literally - The Journey Home at: http://vimeo.com/32430473
(via UniverseToday.com)

+ Martin Bruchanov OK2MNM has made his new book "Image Communication on Short Waves" available free on the web. You can either read it online or download the chapters in PDF format. Image Communication on Short Waves can be found at http://www.sstv-handbook.com/ (via Southgate)

+ The next time you find your QSO on 75 meters stuck on the weather or the state of the other guy's gallbladder try steering the conversation to the design and construction of your own homebrew GPS receiver. Bone up at: http://www.holmea.demon.co.uk/GPS/Main.htm (via Dan, N8FGV)

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office. And, with that, please keep in mind the ham who learned many words in mathematics and geometry have their root in ancient languages. A contemporary of Pythagoras was watching a parrot playing with some twigs. Although birds often play with twigs, leaves and branches, this parrot, to the mathematician's amazement, actually arranged the pieces of wood into a pattern with multiple sides. Then, unfortunately, the bird keeled over, dead. The mathematician was so moved that he named the shape, "Dead parrot." Although - of course - this is why, to this day, we call that shape a polygon.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM